

NORTH STAR MINE POWERHOUSE

HISTORY & DESCRIPTION:

The North Star Mine, originally known as the French Lead, was discovered in 1851 and for many years was worked by various individuals and partnerships. In 1885 the mine was purchased by James D. Hague. In 1886 the main incline shaft was down 1,500 feet, and a 40 stamp mill was in operation. The water was handled by a Cornish pump, put in around 1884.

In 1899 Mr. Hague organized the North Star Mines Co. There was no ore in sight, but Hague had confidence that the veins would prove profitable, and his company began purchasing additional properties in the area. This meant that a new source of dependable power would be needed, so in 1895 Mr. Hague called upon his brother-in-law, A.D. Foote, to investigate mine pumping plants driven by electricity. But electric power was quite new and not dependable, and Foote decided in favor of compressed air as cheaper and more reliable. He was a civil and mining engineer with early training in machinery employed in mining, more particularly, the use of compressed air. In this branch of mechanical engineering he was a pioneer with a keen interest in planning and devising new types of compressed air machines.

Foote convinced the company the entire mine should be operated by compressed air - the pumps, hoists, drills, forges, and even the ventilating system used the exhaust air. This meant the powerhouse would be the first complete plant of its kind using water to compress air for a totally pneumatic operation. Therefore many innovations were necessary, requiring courage on the part of the investors. To quote Mr. Foote: "The sense of being solidly supported in his plans and expenditures and encouraged to make his work thorough by the money power behind him is so rare in the experience of the American engineer as to be worthy of grateful mention."

Work was started in 1895 and the power plant built on Wolf Creek. Water was obtained by installing a 20 inch pipe line, 7,070 feet long, coming down from the Empire Mine and crossing Wolf Creek in a stone and masonry aqueduct. Great care had to be taken in filling the pipe line with water, as opening the Empire gate added 180 pounds pressure per square inch the instant the lower 7,000 feet became full.

The next problem was the Pelton water wheel to drive the compressors. It had to be larger than any ever built before. Foote asked for a 30 ft. wheel, but the Pelton Co. would not try anything so large. So an 18 ft, 6 in. wheel, weighing 10,000 lbs. and delivering 226 horsepower was built. It had spokes in tension like a bicycle wheel. E. A. Rix (with Foote's assistance) designed the huge compressor, hoist and a great deal of the compressed air machinery used later on. Mr. Rix said, "The usual knockers lined the fences to see her blow up when started, but they were disappointed." This wheel proved so successful that the next year (1897) a 30ft. wheel was built (the largest in the world) and it ran night and day for over 30 years.

site - the r

Mr. David A. Tucker
State Park Historian III
Dep't. of Parks and Recreation
P. O. Box 2390
Sacramento, Calif. 95811

October 12, 1970

Dear Mr. Tucker:

The Nevada County Historical Society was delighted to learn of the approval of our application for registration of the North Star Mine Powerhouse including a bronze plaque. We are all very grateful to you and the committee. This will be a great help in furthering our efforts to construct an out-standing mining museum.

In regard to the wording of the plaque, your edited version is excellent. It has been suggested to me that the name of the builder, A. D. Foote, should be included. Since the new version is shorter could it be changed as follows: The North Star Powerhouse, built by A. D. Foote in 1895, was the first complete water powered compressed air transmission plant of its kind. Etc.

The Historical Society will contact you shortly in regard to sponsoring organizations, dedication date, and shipping instructions for the plaque.

Thank you very much for all the help you have given us.

Sincerely,

Marian F. Conway

Marian F. Conway
Historical Landmark Committee

THE NEVADA COUNTY HISTORICAL SOCIETY

INVITES YOU TO ATTEND

THE DEDICATION

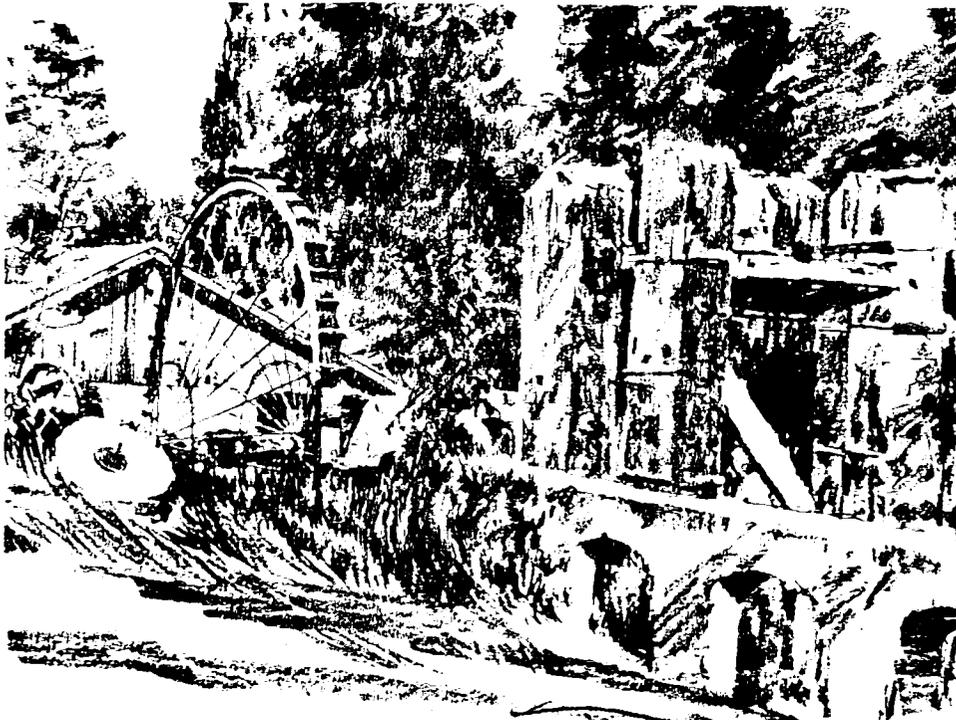
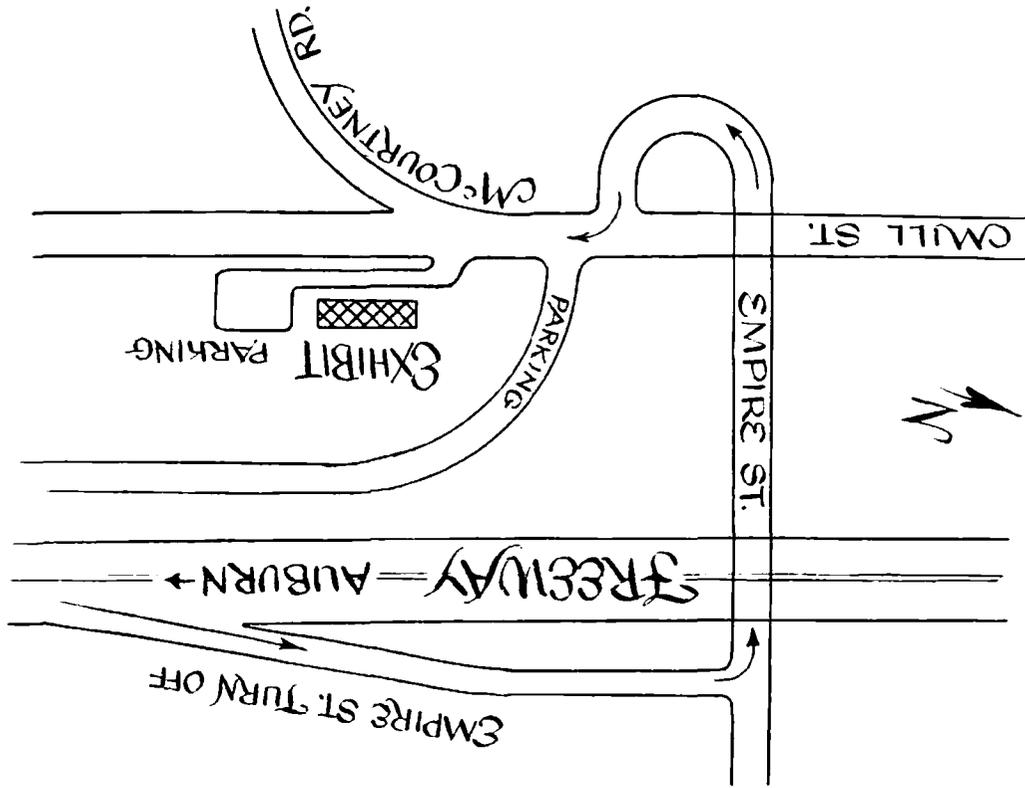
OF THE

HISTORICAL PLAQUE

COMMEMORATING THE

PELTON WHEEL MINING MUSEUM

ON MAY 8TH, 1971 AT 12:30 P.M.



North Star Pelton Wheel Museum Grand Valley - 1896

George Mathis